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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,373	12/08/2003	Juha Iso-Sipila	915-008.16-1	2850
4955 7590 05/03/2007 WARE FRESSOLA VAN DER SLUYS & ADOLPHSON, LLP BRADFORD GREEN, BUILDING 5 755 MAIN STREET, P O BOX 224 MONROE, CT 06468			EXAMINER GODBOLD, DOUGLAS	
			ART UNIT 2626	PAPER NUMBER
			MAIL DATE 05/03/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/730,373

Applicant(s)

ISO-SIPILA, JUHA

Examiner

Douglas C. Godbold

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed:
- 6) ☐ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152..

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to application 10/730,373 filed on December 8, 2003. Claims 1-15 are pending in the application and have been examined.

Claim Objections

2. Claim 4 is objected to because of the following informalities: "Claims should be "claim". Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 8 and 9 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 8 and 9 attempt to claim a computer program product. However this can be interpreted as mere computer code, which is considered non statutory subject matter under 35 U.S.C. 101. Therefore claims 8 and 9 are rejected under 35 U.S.C. 101.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 4-6, and 8-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Campbell (Foreign-Language Speech Synthesis).

7. Consider claim 1, Campbell teaches a method for speech synthesis of a word in a first language (This paper describes a method of concatenative speech synthesis for producing speech in a language other than that of the database speaker, Abstract.), comprising:

dividing said word into a first sequence of pronunciation phonemes in said first language (Once the different languages have been recognized, then the grapheme-to-phoneme filters for each language can be applied to produce a phonetic rendering of the utterance; page 2, column 2, lines 13-16.),

mapping said first phoneme sequence to a second sequence of pronunciation phonemes in at least one second language (The output from the different language filters is then recombined to form a complete sequence, which can then be mapped onto the phonetic space of the output speaker; page 2, column 2, lines 16-19), and

generating an audio output of the phonemes in said second phoneme sequence using prosody models for said at least one second language (This paper describes a method of concatenative speech synthesis for producing speech in a language other than that of the database speaker, Abstract.)

8. Consider claim 4, Campbell teaches the method according to claim 1, wherein said mapping is performed so as to optimize the sound correspondence between said first and said second sequence of phonemes (a mapping must be performed so that the native-language sounds which make up the speaker's database can be re-used to form the closest approximation to the desired target sequence in the foreign language; page 2, column 2, lines 23-27.).

9. Consider claim 5, Campbell teaches the method according to claim 1, wherein said mapping includes using a look-up table (When producing English speech using a Japanese voice database, the 15 (or so) English vowel sounds have to be somehow mapped onto the 5 vowel locii that are available in Japanese. Table 1 presents an example of such a mapping vector from (machine-readable) English into Japanese. We can see that pairs of words like 'cap' and 'cup', and 'lice' and 'rice' become impossible to distinguish unless further clues are available from the text; page 2, column 2, lines 34-41.).

10. Consider claim 6, Campbell teaches the method in claim 1, wherein said prosody models are provided by a text-to-speech (TTS) engine adapted for said at least one second language (This paper describes a method of concatenative speech synthesis for producing speech in a language other than that of the database speaker, Abstract. We know that this system uses the prosody models of the 2nd language as Campbell teaches how to approximate the features of the 1st language with the 2nd language.).

11. Consider claim 8, Campbell teaches a computer program product, loadable into memory of a computer (The first line of the Introduction section indicates that Campbell is discussing computer synthesis, therefore a computer program product loadable into a memory is an inherent feature of the system discussed by Campbell.), said computer program product comprising computer code portions for performing the method according to claim 1 when executed by said computer (See rejection of claim 1.).

12. Consider claim 9, Campbell teaches the computer program product in claim 8, stored on a computer readable medium (The first line of the Introduction section indicates that Campbell is discussing computer synthesis, therefore a computer program product in memory is an inherent feature of the system discussed by Campbell.).

13. Consider claim 10, Campbell teaches a speech synthesizer (figure 1) for speech synthesis of a word in a first language (This paper describes a method of concatenative speech synthesis for producing speech in a language other than that of the database speaker, Abstract.) comprising:

a pronunciation module for dividing said word into a first sequence of pronunciation phonemes in said first language (Once the different languages have been recognized, then the grapheme-to-phoneme filters for each language can be applied to produce a phonetic rendering of the utterance; page 2, column 2, lines 13-16.),

processing means for mapping said first phoneme sequence to a second sequence of pronunciation phonemes in at least one second language (The output from the different language filters is then recombined to form a complete sequence, which can then be mapped onto the phonetic space of the output speaker; page 2, column 2, lines 16-19), and

a speech synthesis engine for generating an audio output of the phonemes in said second phoneme sequence using prosody models for said at least one second language (This paper describes a method of concatenative speech synthesis for producing speech in a language other than that of the database speaker, Abstract.).

14. Consider claim 11, Campbell teaches the speech synthesizer in claim 10, wherein said processing means has access to a look-up table (When producing English speech using a Japanese voice database, the 15 (or so) English vowel sounds have to be somehow mapped onto the 5 vowel locii that are available in Japanese. Table 1 presents an example of such a mapping vector from (machine-readable) English into Japanese. We can see that pairs of words like 'cap' and 'cup', and 'lice' and 'rice' become impossible to distinguish unless further clues are available from the text; page 2, column 2, lines 34-41.).

15. Consider claim 12, Campbell teaches the speech synthesizer in claim 11, wherein said look-up table is stored in a memory (matching vector is machine readable, indicating that it is stored on a memory; page 2, column 2 line 38.).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

18. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell in view of Hyde-Thompson et al. (US APA 2001/0056348).

19. Consider claim 2, Campbell teaches the method according to claim 1, but does not specifically teach further comprising selecting said at least one second language in dependence of said first language.

In the same field of text to speech conversion, Hyde-Thompson teaches selecting a text to speech engine based on the first language (Figure 3, shows a way to

determine the language of a text and select an appropriate TTS engine; paragraphs 0031-0038. This effectively selects the groups of phonemes used in the TTS. As this process is statistical, it will choose the language with the features closest to that of the input text.)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to select the language of phonemes used in the text to speech based on the input language as taught by Hyde-Thompson with the Text to speech engine of Campbell in order to provide a more accurate synthesis of the input text regardless of the language.

20. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell.

21. Consider claim 3, Campbell teaches the method in claim 1, but does not specifically teach said second sequence of phonemes belong to a plurality of different languages.

However, in figure 2, Campbell does show a feature set of the international vowel space, which is made up of phonemes of different languages.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the international language vowel space instead of the single Japanese language space to synthesis a different language as taught by Campbell in order to more accurately synthesis the original text.

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22. Claims 7, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell in view of Addison (PAP 2003/0144842).

23. Consider claim 7, Campbell teaches the method according to claim 1, but does not specifically teach smoothing transitions between different phonemes in said second phoneme sequence.

In the same field of speech synthesis Addison teaches smoothing transitions between different phonemes in said second phoneme sequence (Figure 1, The resulting "phoneme" list is passed into a digital filter bank where the audio stream for a given phoneme is looked up in a database, filtered using digital filters, at step 30, whose parameters are determined by the previous rule processing, and finally "smoothed" prior to outputting the audio to the speakers. For the smoothing may be achieved through the use of a smoothing filter at step 32 which, at step 34, outputs a voice signal; paragraph 0034.).

Therefore it would it would have been obvious to one of ordinary skill in the art at the time of the invention to use a smoothing filter as taught by Addison with the synthesis method of Campbell in order to provide good speech continuity (Addison 0064.)

24. Consider claim 13 Campbell teaches the speech synthesizer in claim 10, but does not specifically teach comprising post processing means, for smoothing transitions between different phonemes in said second phoneme sequence.

In the same field of speech synthesis Addison teaches post processing means, for smoothening transitions between different phonemes in said second phoneme sequence (Figure 1, The resulting "phoneme" list is passed into a digital filter bank where the audio stream for a given phoneme is looked up in a database, filtered using digital filters, at step 30, whose parameters are determined by the previous rule processing, and finally "smoothed" prior to outputting the audio to the speakers. For the smoothing may be achieved through the use of a smoothing filter at step 32 which, at step 34, outputs a voice signal; paragraph 0034.).

Therefore it would it would have been obvious to one of ordinary skill in the art at the time of the invention to use a smoothing filter as taught by Addison with the synthesis method of Campbell in order to provide good speech continuity (Addison 0064.)

25. Consider claim 14, Campbell teaches a speech synthesizer of claim 10 but does not specifically teach that it is part of a communication device.

In the same field of speech synthesis Addison teaches using a speech synthesizer in a communication device (Applications, of the present invention include customer service response systems, telephone answering systems, information retrieval, computer reading for the blind or "hands busy" person, education, office assistance, and more; paragraph 0023.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the speech synthesis device taught by Campbell in a

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communication device as taught by Addison in order to provide a use for the speech synthesis system.

26. Consider claim 15, Addison teaches the communication device in claim 14, further comprising a voice recognition system (using this system in conjunction with a voice recognition system in a phone answering system is discussed; paragraph 0004.)

Conclusion


27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is included on the notice of references cited.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas C. Godbold whose telephone number is (571) 270-1451. The examiner can normally be reached on Monday-Thursday 7:00am-4:30pm Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DCG



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